PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Kurt W. Getreuer	§ Art Unit: 2752
Filed: June 7, 1995	§ Examiner: DINH, Tan
Serial No: 08/485,070	§ DVA Docket No.: 951028(US)USC1X1X1D1 MMM!
For: METHOD AND APPARATUS FOR MOVING CARRIAGE ASSEMBLY FROM INITIAL POSITION TO TARGET POSITION AND OPTICAL DISC SYSTEM INCLUDING SAME (as amended)	§

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Box CPA
Washington DC 20231

Sir:

Upon continuing examination of the above referenced application by way of the concurrently filed 37 C.F.R. § 1.53(d) CPA, Applicant wishes to amend the above-identified application as follows:

In the Abstract:

Please delete the abstract in toto and in place thereof insert:

--An apparatus and method for moving a carriage assembly from an initial position to a target position relative to a storage medium rotating at a circumferential velocity. A processor determines a velocity trajectory relative to the radial distance of the initial position and the target position to the center of the medium, the circumferential distance between the initial position and the target position, and the initial circumferential velocity of the medium. The processor directs the drive to move the carriage assembly using the velocity trajectory so that the carriage assembly will arrive radially and circumferentially at the target position at substantially the same time. Additionally, the rotation of the storage medium may be changed from the initial circumferential velocity to a target circumferential velocity.--.

In accordance with Office policy under M.P.E.P. Sec. 608.01(b), Applicant submits herewith a separate sheet with the subject Abstract as currently rewritten.

In the Specification:

At page 1, please delete the current title and in place thereof please insert --METHOD AND APPARATUS FOR MOVING CARRIAGE ASSEMBLY FROM INITIAL POSITION TO TARGET POSITION AND OPTICAL DISC SYSTEM INCLUDING SAME--

At page 1, lines 4-7, of the substitute specification filed herein on December 18, 1997, please delete ", which is a continuation-in-part of U.S. patent application Ser. No. 08/105,866, filed Aug. 11, 1993, now abandoned, which is a continuation of U.S. patent application Ser. No. 07/657,155, filed Feb. 15, 1991, now U.S. Pat. No. 2,265,079." and in place thereof please insert --, now U.S. Patent No. 5,729,511.--.

In the Claims:

Please amend claim 1 in the following manner:

1. (Amended) A method for moving a carriage assembly from an initial position to a target position relative to a storage medium having a center and a circumference, and rotating relative to the [said] carriage assembly at a circumferential velocity about the [said] center, said method comprising the steps of:

determining a first radial distance between the [said] initial position of the [said] carriage assembly and the [said] center of the [said] storage medium;

determining a second radial distance between the [said] target position of the [said] carriage assembly and the [said] center of the [said] storage medium;

determining a circumferential distance between the [said] initial position of the [said] carriage assembly and the [said] target position of the [said] carriage assembly [taken parallel to said circumference of said storage medium];

determining an initial circumferential velocity of the [said] storage medium about the [said] center of the [said] storage medium; and

calculating a velocity trajectory relative to said first radial distance, said second radial distance, said circumferential distance, and said initial circumferential velocity so [such] that[, if] when the [said] carriage assembly is moved from the [said] initial position to the [said] target position with said velocity trajectory, the [said] carriage assembly will arrive radially and circumferentially at the [said] target position at substantially the same time[; and

moving said carriage assembly from said initial position to said target position substantially at said velocity trajectory].

Please add the following claims 17-47:

17. The method according to claim 1 wherein said circumferential distance between the initial position of the carriage assembly and the target position of the carriage assembly is taken parallel to the circumference of the storage medium.

18. The method according to claim 1 including the further step of moving the carriage assembly from the initial position to the target position substantially at said velocity trajectory.

19. The method according to claim 1 further including the step of determining a target circumferential velocity of the storage medium about the center of the storage medium.

20. The method according to claim 19 further including the step of applying a force to the storage medium to change the rotation thereof from said initial circumferential velocity to said target circumferential velocity.

21. The method according to claim 19 wherein said velocity trajectory is relative to a desired circumferential velocity.

22. The method according to claim 19 wherein the carriage assembly will arrive radially and circumferentially at the target position at substantially the same time when moved with said velocity trajectory from the initial position to the target position, and when said initial circumferential velocity of the storage medium is changed to said target circumferential velocity.

23. The method according to claim 19 wherein the storage medium achieves said target circumferential velocity before the carriage assembly arrives at the target position.

24. The method according to claim 19 wherein the storage medium achieves said target circumferential velocity at substantially the same time as the carriage assembly arrives at the target position.

25. A control apparatus, comprising:

a carriage assembly movable from an initial position to a target position relative to a respective storage medium having a center and a circumference, said respective storage medium rotating relative to said carriage assembly at a circumferential velocity about said center;

means for determining a first radial distance between said initial position of said carriage assembly and said center of the storage medium;

means for determining a second radial distance between said target position of said carriage assembly and said center of the storage medium;

means for determining a circumferential distance between said initial position of said carriage assembly and said target position of said carriage assembly;

means for determining an initial circumferential velocity of the storage medium about said center of the storage medium; and

means for calculating a velocity trajectory relative to said first radial distance, said second radial distance, said circumferential distance, and said initial circumferential velocity so that when said carriage assembly is moved from said initial position to said target position with said velocity trajectory, said carriage assembly will arrive radially and circumferentially at said target position at substantially the same time.

26. The apparatus according to claim 25 wherein said circumferential distance between said initial position of said carriage assembly and said target position of said carriage assembly is taken parallel to said circumference of the storage medium.

27. The apparatus according to claim 25 further including means for moving said carriage assembly from said initial position to said target position substantially at said velocity trajectory.

28. The apparatus according to claim 25 further including means for determining a target circumferential velocity of the storage medium about said center thereof.

29. The apparatus according to claim 28 further including means for applying a force to the storage medium to change the rotation thereof from said initial circumferential velocity to said target circumferential velocity.

30. The apparatus according to claim 28 wherein said velocity trajectory is relative to a desired circumferential velocity.

31. The apparatus according to claim 28 wherein said carriage assembly arrives radially and circumferentially at said target position at substantially the same time when moved with said velocity trajectory from said initial position to said target position, and when said initial circumferential velocity of the storage medium is changed to said target circumferential velocity.

32. The apparatus according to claim 28 wherein the storage medium achieves said target circumferential velocity before said carriage assembly arrives at said target position.

33. The apparatus according to claim 28 wherein the storage medium achieves said target circumferential velocity at substantially the same time as said carriage assembly arrives at said target position.

34. An optical disc system operated according to the method recited in any one of claims 1, 17, 18, 19, 20, 21, 22, 23, or 24.

35. An optical disc system including the control apparatus recited in any one of claims 25, 26, 27, 28, 29, 30, 31, 32, or 33.

36. A method for moving a carriage assembly from an initial position to a target position relative to a storage medium having a center and a circumference, and rotating relative to the carriage assembly at a circumferential velocity about the center, said method comprising the steps of:

determining a first radial distance between the initial position of the carriage assembly and the center of the storage medium;

determining a second radial distance between the target position of the carriage assembly and the center of the storage medium;

determining a circumferential distance between the initial position of the carriage assembly and the target position of the carriage assembly taken parallel to said circumference of said storage medium;

determining an initial circumferential velocity of the storage medium about the center of the storage medium;

calculating a velocity trajectory relative to said first radial distance, said second radial distance, said circumferential distance, and said initial circumferential velocity so that when the carriage assembly is moved from the initial position to the target position with said velocity trajectory, the carriage assembly will arrive radially and circumferentially at the target position at substantially the same time; and

moving the carriage assembly from the initial position to the target position substantially at said velocity trajectory.

37. A control apparatus, comprising:

a carriage assembly movable from an initial position to a target position relative to a respective storage medium having a center and a circumference, said respective storage medium rotating relative to said carriage assembly at a circumferential velocity about said center;

a first measuring assembly utilized to determine a first radial distance between said initial position of said carriage assembly and said center of the storage medium;

a second measuring assembly employed to determine a second radial distance between said target position of said carriage assembly and said center of the storage medium;

a third measuring assembly implemented to determine a circumferential distance between said initial position of said carriage assembly and said target position of said carriage assembly;

a first detector assembly activated to determine an initial circumferential velocity of the storage medium about said center of the storage medium; and

a processor operated to calculate a velocity trajectory relative to said first radial distance, said second radial distance, said circumferential distance, and said initial circumferential velocity so that when said carriage assembly is

moved from said initial position to said target position with said velocity trajectory, said carriage assembly will arrive radially and circumferentially at said target position at substantially the same time.

38. The apparatus according to claim 37 wherein said circumferential distance between said initial position of said carriage assembly and said target position of said carriage assembly is taken parallel to said circumference of the storage medium.

39. The apparatus according to claim 37 further including an actuator employed to move said carriage assembly from said initial position to said target position substantially at said velocity trajectory.

40. The apparatus according to claim 37 further including a second detector assembly implimented to determine a target circumferential velocity of the storage medium about said center thereof.

41. The apparatus according to claim 40 further including a motor that applies a force to the storage medium to change the rotation thereof from said initial circumferential velocity to said target circumferential velocity.

42. The apparatus according to claim 40 wherein said velocity trajectory is relative to a desired circumferential velocity.

43. The apparatus according to claim 40 wherein said carriage assembly arrives radially and circumferentially at said target position at substantially the same time when moved with said velocity trajectory from said initial position to

said target position, and when said initial circumferential velocity of the storage medium is changed to said target circumferential velocity.

44. The apparatus according to claim 40 wherein the storage medium achieves said target circumferential velocity before said carriage assembly arrives at said target position.

45. The apparatus according to claim 40 wherein the storage medium achieves said target circumferential velocity at substantially the same time as said carriage assembly arrives at said target position.

46. An optical disc system operated according to the method recited in claim 36.

47. An optical disc system including the control apparatus recited in any one of claims 37, 38, 39, 40, 41, 42, 43, 44, or 45.

REMARKS

Applicant acknowledges with appriciation the Examiner's indication of allowable subject matter in claim 1, entry of the substitute specification filed herein on December 18, 1997, and the subsequent telephone interviews conducted with the Examiner in response to the Examiner's letter of April 15, 1998.

In response to the Office Communication of June 6, 1998, Applicant has filed the concurrent CPA under 37 C.F.R. § 1.53(d). Herein, Applicant has rewritten the abstract, amended claim 1, and added claims 17-47. The

previously filed and entered substitute specification has been amended to include a new title commencerate with the claims currently pending herein.

Pursuant to 35 USC § 120, Applicant has also amended the application so that the effective filing date hereof is January 25, 1995. In view thereof, Applicant respectfully requests the Examiner to update any required search of the prior art hereto. Applicant accordingly further requests issuance of a new filing receipt identifying the current claim of priority as amended above, and recognition of the above-amendments in any patent issuing hereon.

If the Examiner believes that contact with Applicant's attorney would be advantageous toward the disposition of this case, he is herein requested to call Applicant's attorney at the phone number noted below.

Respectfully submitted,

DISCOVISION ASSOCIATES

Date: September 2, 1998

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FILING OF CORRESPONDENCE BY EXPRESS MAIL UNDER 37 C.F.R. § 1.10

EM371812102US September 3, 1998

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ABSTRACT

An apparatus and method for moving a carriage assembly from an initial position to a target position relative to a storage medium rotating at a circumferential velocity. A processor determines a velocity trajectory relative to the radial distance of the initial position and the target position to the center of the medium, the circumferential distance between the initial position and the target position, and the initial circumferential velocity of the medium. The processor directs the drive to move the carriage assembly using the velocity trajectory so that the carriage assembly will arrive radially and circumferentially at the target position at substantially the same time. Additionally, the rotation of the storage medium may be changed from the initial circumferential velocity to a target circumferential velocity.